

## SECTION 02513 - ASPHALT CONCRETE PAVING

### PART 1 - GENERAL

#### SUMMARY

Extent of asphalt concrete paving work is shown on Drawings.

Prepared aggregate subbase and aggregate base course is specified in Section 02210, Excavation and Backfill (Sewers and Water Main).

#### REFERENCES

MDOT 3.01	Aggregate Base Course and Surface Courses
MDOT 4.00	Plant Mixed Bituminous Pavements
MDOT 4.06	Bituminous Seal Coats
MDOT 4.06.10	Weather Limitations
MDOT 4.06.12	Maintenance of Surface
MDOT 8.02	Aggregates
MDOT 7.10	Bituminous Mixtures - Plant Mixed

#### SUBMITTALS

Material Certificates. Provide copies of materials certificates signed by material producer and CONTRACTOR, certifying that each material item complies with, or exceeds, specified requirements.

Bituminous Mix Design. Provide a laboratory-designed, Marshall mix design for all bituminous mixtures. The mix design shall include, at a minimum, the asphalt content, compacted mixture specific gravity theoretical maximum specific gravity, air voids, voids filled with asphalt (VFA), voids mineral aggregate (VMA), mix proportions, stability, flow, aggregate gradation, crush content, and job mix formula. Mix design shall be provided at least seventy-two (72) hours prior to placement to allow time for review and approval.

#### QUALITY ASSURANCE

Codes and Standards. Comply with Michigan Department of Transportation Standard Specifications for Construction.

#### SITE CONDITIONS

Weather Limitations. Apply prime and tack coats when ambient temperature is above 50 degrees F (10 degrees C), and when temperature has not been below 35 degrees F (1 degree C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

Construct asphalt concrete surface course when atmospheric temperature is above 40 degrees F (4 degrees C), and when base is dry. Bituminous base course over 2 inches thick may be placed when air temperature is above 35 degrees F (-1 degree C) and rising. Asphalt may not be placed between November 15 and May 5 unless OWNER approval is provided..

Grade Control. Establish and maintain required lines and elevations. Grade control shall be per MDOT standards.

## PART 2 - PRODUCTS

### MATERIALS

General. Use locally available materials and gradations which meet the specifications requirements and exhibit a satisfactory record of previous installations.

Surface Course Aggregate. MDOT Specification 20AA.

Mineral Filler. MDOT Specifications 3MF.

Asphalt Cement. Asphalt penetration (viscosity) rate of 120 to 150.

Bond Coat. MDOT Specification SS1h or MS-2a.

Lane Marking Paint. Chlorinated rubber-alkyd type, AASHTO M 248 (FS TT-P-115), Type III.

### ASPHALT-AGGREGATE MIXTURE

Bituminous Base Course. MDOT Mixture No. 11A.

Bituminous Leveling Course. MDOT Mixture No. 3B.

Bituminous Wearing Course. MDOT Mixture No. 36A.

Bituminous mixtures shall be Bituminous Mixture No. 36A furnished and placed in accordance with MDOT Specification 7.10 and 4.00. Aggregate Wear Index shall be 220 for local roads and 260 for collection and major roads.

When tested at the optimum asphalt content in accordance with ASTM D1559, the bituminous mixture shall meet the requirements for stability, 1100 pounds, flow, 8-16 hundredths of an inch, air voids 3.0 percent, and voids in mineral aggregate, 13.5 percent, as specified in Table 7.10-1 of the MDOT Specifications. The maximum allowable deviations permitted from the approved Job-Mix Formula shall be as shown in Table 7.10-3 of the MDOT Specifications.

## PART 3 - EXECUTION

### SURFACE PREPARATION

Proof roll prepared subbase surface to check for unstable areas and areas requiring additional compaction. Do not begin base construction or paving work until deficient subbase areas have been corrected and are ready to receive paving.

Pavement along edges of existing bituminous surfaces shall be removed as directed by ENGINEER to construct butt joints.

Tack Coat. Apply to contact surfaces of previously constructed asphalt or portland cement concrete and surfaces abutting or projecting into asphalt concrete pavement. Distribute at rate of 0.10 gal. per sq. yd. of surface. Apply to all edges of concrete curb and gutter.

Allow to cure until at proper condition to receive paving.

Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.

## PLACING MIX

General. Place asphalt concrete mixture on prepared surface, spread and strike-off in accordance with MDOT Specifications. Spread mixture at minimum temperature of 225 degrees F (107 degrees C). Place inaccessible and small areas by hand. Place each course to required grade, cross-section, and compacted thickness as shown on the Drawings.

Paver Placing. Place in strips to line up with lane lines in accordance with MDOT Specifications.

Joints. Make joints between old and new pavements or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density and smoothness as other sections of asphalt concrete course. Clean contact surfaces and apply tack coat. All joints on new pavement shall be vertical joints. Joints on old to new pavement shall be butt joints.

## ROLLING

General. Begin rolling when mixture will bear roller weight without excessive displacement.

Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

Breakdown Rolling. Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material.

Second Rolling. Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been thoroughly compacted.

Finish Rolling. Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained maximum density.

Patching. Remove and replace paving areas mixed with foreign materials and defective areas. Cut-out such areas and fill with fresh, hot asphalt concrete. Compact by rolling to maximum surface density and smoothness.

Protection. After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

## TRAFFIC AND LANE MARKINGS

Cleaning. Sweep and clean surface to eliminate loose material and dust.

Striping. Use chlorinated-rubber base traffic lane-marking paint, factory-mixed, quick-drying, and non-bleeding.

Color. White.

Color. Yellow.

Do not apply traffic and lane marking paint until layout and placement has been verified with Engineer.

Apply paint with mechanical equipment to produce uniform straight edges. Apply in 2 coats at manufacturer's recommended rates.

## FIELD QUALITY CONTROL

General. In-place asphalt concrete courses will be tested for compliance with requirements for thickness and surface smoothness by OWNER. CONTRACTOR shall repair or remove and replace unacceptable paving as directed by ENGINEER.

Thickness. In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness:

Base Course. 1/4-inch, plus or minus.

Surface Course. 1/4-inch, plus or minus.

Surface Smoothness. Test finished surface of each asphalt concrete course for smoothness, using 10-foot straightedge applied parallel with, and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness.

Base Course Surface. Lower Courses - 3/4-inch, Top Course - 3/8-inch.

Leveling and Wearing Course Surface. Multiple course construction - 1/8-inch for top course, 1/4-inch for lower course. Single course construction - 1/4-inch.

END OF SECTION 02513